

Making Sense of Commodity Markets: FAPRI-MU Outlook and Policy Implications

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Abstract

Declining prices have followed two recent price spikes in 2007/08 and 2010/11 to 2012/13 that brought an era of higher and more volatile commodity prices that is quite different from the previous years of depressed prices. Declining petroleum prices combined with excellent global harvests brought the lowest market prices in many years. Are current policies tuned to these market conditions? We begin with a review of past policy evolution that took place in the European Union (EU) and United States (US), and then look at recent reforms and prospects for policy changes in the context of likely changes in the global market and policy environment over the next decade. Since agricultural policies generally evolve in response to internal and external pressures in a political economy context, we explore how the outlook of commodity markets may influence the directions of policies and the decision making environment for farmers.

Key words: European Union, United States, Agricultural Policy, CAP, Commodity Markets Outlook

Introduction

The policies of the EU and US have both evolved significantly over time and were influenced by many domestic political, economic and cultural factors as well as by international agreements such as the Uruguay Round

Agreement on Agriculture (URAA). The URAA and subsequent implementation of WTO disciplines encouraged countries to convert support programs to less distorting measures and to reduce the levels of support by some measurable amounts. We will look first at evolving EU policies and then at those in the US.

The EU was often the target of US and other exporter criticism during the Uruguay Round trade negotiations because aside from destabilizing world markets, the success of its domestic support had generated large surpluses and growing export subsidies. Awareness of the growing costs and trade concerns led to the first major EU-funded policy reform analysis (Commission of the European Communities 1988) and many other studies of the global impacts of changing these policies (Westhoff *et al.*, 1992; Meyers *et al.*, 1998). Meanwhile, decoupled support policies were gaining ground on both sides of the Atlantic (Phipps *et al.*, 1990) and became an integral part of the URAA. Enlargement of the EU as well as growing production put increasing pressures on the EU budget and stimulated further policy reforms.

In the case of EU, the most distorting measures were the domestic price supports and export subsidies. These have been reduced to almost insignificant shares of the total expenditure (Meyers and Ziolkowska, 2012) and were largely replaced by direct payments and more recently by decoupled direct payments based on historical support levels and programs. Meanwhile, expenditures on rural development programs have been gradually increasing over time and stabilized at about 20 percent of total expenditures. Total expenditures have also increased over time, partly due to enlargement of the EU, and reached close to 60 billion Euro by 2013.

The pattern of change in US policy measures is different but also shows significant change since the early 1990s (Meyers and Ziolkowska, 2012). First of all, costs of US programs are substantially lower but vary much more widely than the EU costs, because the EU operates with a fixed budget, while the US has had several programs that cost much more when prices are low and much less or nothing at all when prices are high. The largest shift in program design and cost came with the introduction of decoupled direct payments in 1996, but insurance programs were introduced about the same time and their growth has been another major change in expenditures.

Material and Methods

We employ market analysis and quantitative assessment to look at the global market prospects that have affected or can affect the evolution of US and EU policies. The likely market context in which post-2014 US and EU policies will be implemented is important. Ever since the price surges of 2007/08, there has been a growing discussion among analysts on whether price levels and price volatility will be different in the future than in the last decade or so before this price surge. After the late 2008 prices plunge, market prices have been higher and more volatile compared with pre-2005 behaviors (figure 1). Lately we have seen a large decline in oil prices and also in agriculture and food prices but not as low as pre-2005 prices.

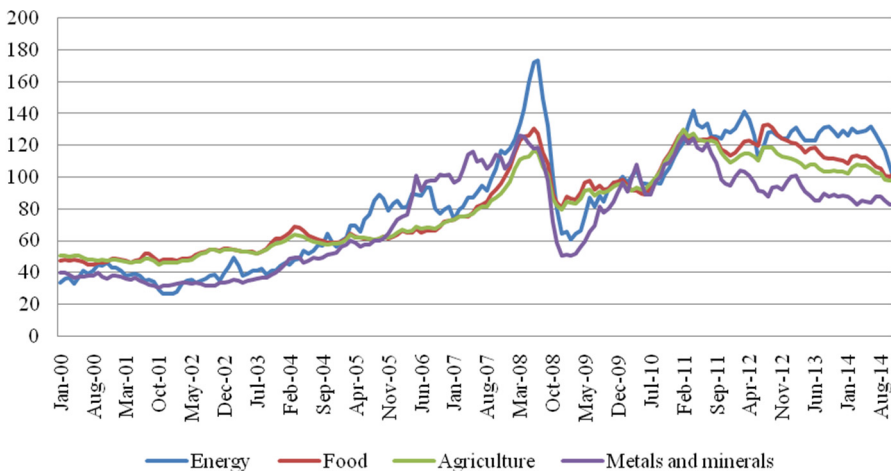


Fig. 1. World Bank food, energy, metals price indices, 1/00 to 7/13, 2005=100

Svjetska banka hrane, energija, indeksi cijena metala

Source: Food, energy, metals and minerals price indices, pink data (World Bank, 2015)

Izvor: Indeksi cijena za hranu, energiju, metale i minerale, pink data (pink stranice), (Svjetska Banka, 2015)

It is instructive at the beginning to look at the causes of the sharp grain price increase in the 2012-13 crop year and the price decline in the next marketing year. The primary cause of the increase in prices in 2012/13 was a historically deep drought in the Midwest that saw average U.S. corn yields fall by 16 percent. This contributed to a large decline in global grain supplies (table 1), at a time when global stocks were already very low. Stock

levels were low in part as a result of the fact that the 2012 was the third consecutive year of low corn yields in the U.S.

In the next crop year (2013/14) grain production had the largest increase in recent memory, led by the recovery of corn production in the U.S. In response, grain prices declined dramatically. It is clear that much of the price gyrations was caused by simple supply and demand factors driven by weather shocks. The fall in prices from the 2012/13 peak was not just predicted by modeling institutions such as FAPRI-MU, USDA or OECD, but also by the markets themselves where futures markets have been anticipating a similar fall in prices.

Tab. 1. Grain production decline and rise, million metric tons

Proizvodnja žitarica, pad i porast, u milionima metričkih tona

	2011/12	2012/13	Absolute change (apsolutna promjena)	2012/13	2013/14	Absolute change (apsolutna promjena)
<i>Coarse Grains (žita, bez pšenice)</i>						
World	1154.0	1136.3	-17.7	1136.3	1278.3	142.0
USA	323.7	286.0	-37.7	286.0	369.4	83.4
FSU-12	78.7	69.2	-9.5	69.2	87.6	18.4
EU 27	150.0	145.8	-4.2	145.8	158.4	12.6
<i>Wheat (pšenica)</i>						
World	697.2	656.5	-40.7	656.5	715.1	58.6
FSU-12	115.0	77.4	-37.6	77.4	103.9	26.5
EU 27 and Aus	168.0	156.3	-11.7	156.3	170.1	13.8
USA	54.4	61.7	7.3	61.7	58.0	-3.7

Source/Izvor: USDA WASDE (Oct 10, 2014)

Given the market fluctuations and uncertainties, policymakers and a wide range of stakeholders in the food and agricultural sector need timely, reliable, and research-based analysis to support improved policy decision making. The approach taken by the Food and Agricultural Policy Research Institute (FAPRI) to modeling and delivery of objective analytical results grew out of this information need. In fact, 2014 marked the 30th anniversary of FAPRI's founding. The FAPRI approach to such analysis and dissemination of results has evolved in a number of ways during these years, including the application and further development of the analytic approach

in a wide variety of countries and organizations and within FAPRI itself (Meyers *et al.*, 2010). The analysis conducted by FAPRI evaluates the fundamental factors driving demand, supply and prices in the future but also provides an estimate of possible variances of these results.

One of the approach's strengths is that it is flexible enough to address regional differences or the alternate policy objectives that clients might have for the model. Partners have different requirements in terms of commodity coverage, exposure to world markets, regional disaggregation or scale of model. The FAPRI approach is very pragmatic. Statistical and econometric methods are used where possible, but in many emerging market countries the data is not sufficiently complete or available for enough years to do sophisticated econometric estimations. In these cases we rely more on theory and research results in other countries to determine behavioral parameters.

What is important is the capacity to correctly link commodity markets and policies so that any impact of policy or external factor, such a yield change or a world market shock can be traced through the different commodity markets and through time to see the effects on all main markets, not just on the one where the shock occurred. Once the analytical system is operational various analyses and scenarios can be conducted. These follow a consistent procedure.

Results and Discussion

The FAPRI (2014) average wheat and corn price projections for the next decade, as an example, hover around levels that are 50 to 100 percent higher than they were before the 2007/08 price spike but also about \$50 to 100/mt lower than in 2012/13 crop year (figure 2). The pattern is somewhat similar for oilseed prices (figure 3).

FAPRI analyzes possible shocks by doing stochastic analysis that allows a number of important factors to randomly vary from their means, and in this case generate prices that are sometimes much higher or lower than seen in the smooth average¹ price projections (Meyer *et al.*, 2010). This is illustrated by using FAPRI projection of US corn prices. Picking a few of the 500 draws shows they can deviate substantially from the average based on yield or other exogenous variables that impact price. A few examples of stochastic draws and the results are shown as an example (figure 4). When

¹The reported average projected price is the average of the 500 stochastic runs.

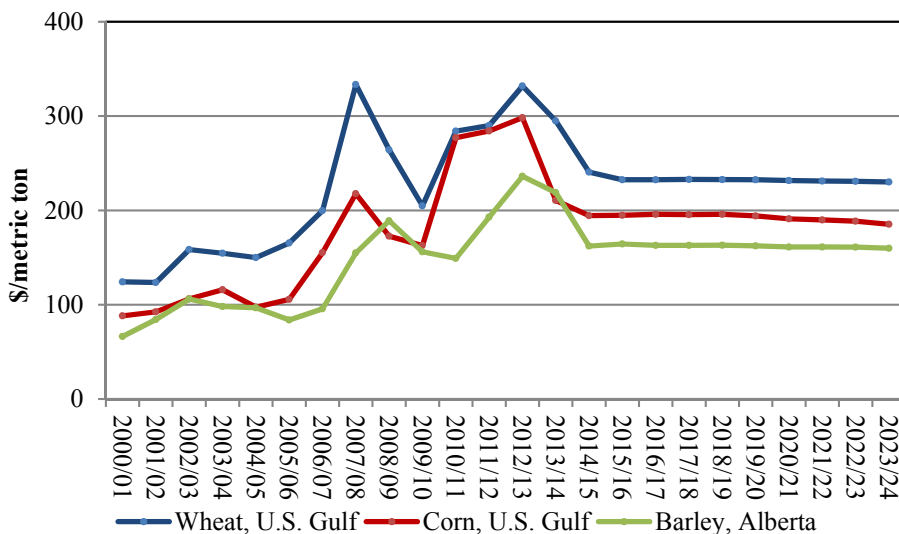


Fig. 2. FAPRI projections of US FOB maize and wheat and Alberta barley prices
FAPRI projekcije SAD FOB cijene kukuruza, pšenice i ječma Alberta
 Source: calculated from the FAPRI-MU August 2014 baseline update
 Izvor: Kalkulacija iz baznih podataka FAPRI-MU azuriranih u avgustu 2014

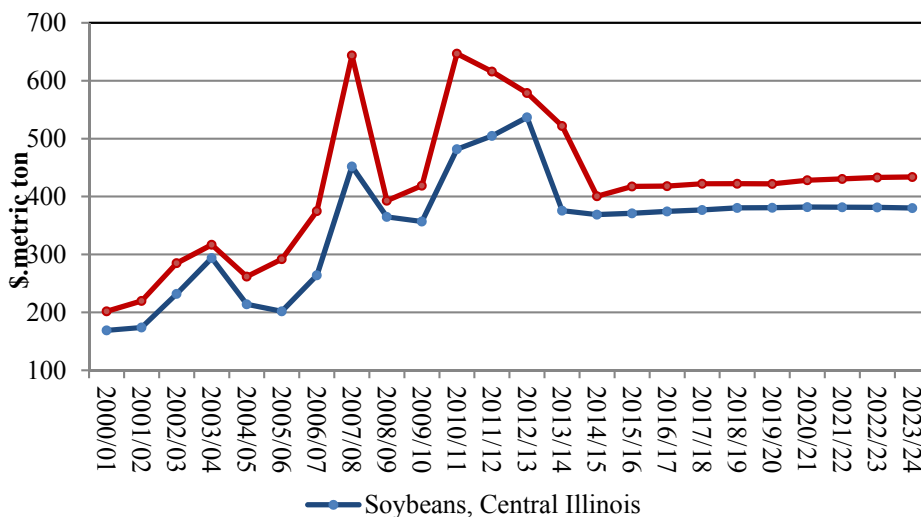


Fig. 3. FAPRI projections of average oilseeds prices
FAPRI projekcije prosječnih cijena uljarica
 Source: calculated from the FAPRI-MU August 2014 baseline update
 Izvor: Kalkulacija iz baznih podataka FAPRI-MU azuriranih u avgustu 2014

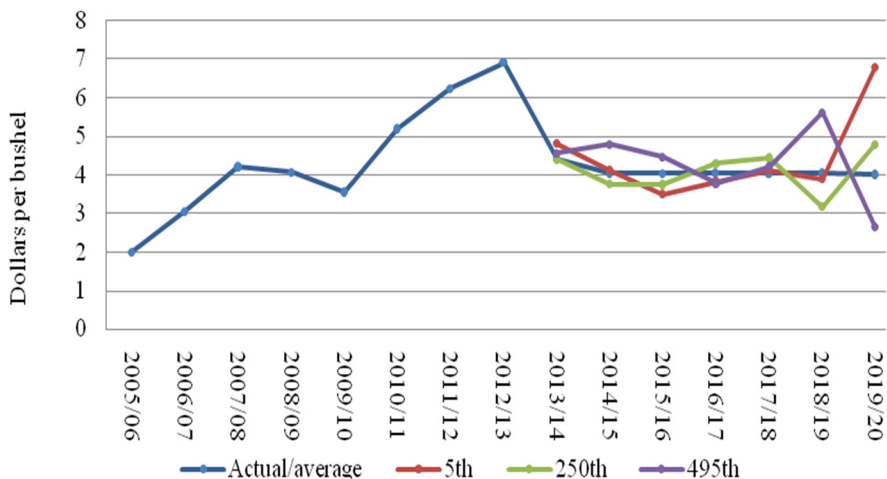


Fig. 4. FAPRI projection of US corn farm price in 3 of the 500 outcomes
FAPRI projekcija cijena kukuruza sa američkih farmi u 3 od 500 rezultata
 Source: Calculations based on FAPRI-MU projections March 2014 stochastic baseline
Izvor: Kalkulacije bazirane na projekcijama FAPRI-MU, mart 2014, stohasticki bazni podaci

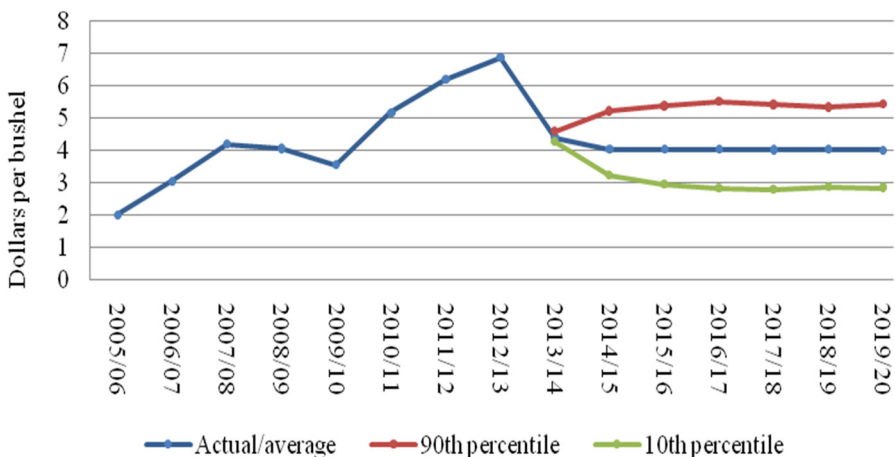


Fig. 5. Range of stochastic outcomes for US farm price of corn
Raspon stohastičkih ishoda cena kukuruza američkih farmi
 Source: Calculations based on FAPRI-MU projections March 2014 stochastic baseline
Izvor: Kalkulacije bazirane na projekcijama FAPRI-MU, mart 2014, stohasticki bazni podaci

all 500 draws are assessed, there is a range of possible outcomes illustrated for US farm price of corn in figure 5, where the price is expected to be between the higher and lower bounds 80 percent of the time.

Conclusion

The pressures to change EU policy in the new financial framework (from 2014-2020) included budget constraints, interests in strengthening environmental measures, and desires to reduce the disparity between payment levels of new member states and the pre-2004 membership of the EU-15 and to enhance the flexibility of member states to tailor programs to their differing conditions. Changes in decision making procedures with the enhanced role of the EU Parliament, the full participation of the Post-2004 new member states and a Commissioner of Agriculture coming from one of the new member states (Romania) were also factors influencing the outcome (Meyers and Ziolkowska, 2012).

Pressures for change in US policy also had a strong budgetary aspect, because of the high priority to reduce the growing budget deficit. There was also interest in Congress and among some farm lobby groups to shift emphasis from decoupled payments to risk management programs. Finally, the political gridlock in Washington DC, made it difficult to pass any new legislation. Both the US Senate and US House of Representatives passed their own versions of new farm legislation (FAPRI, 2013), and these differences were finally resolved in early 2014 in a Farm Bill that included provisions from each of those proposals.

Neither the US nor the EU are strongly pressured by WTO negotiations at the moment, partly because negotiations are stalled. We can conclude that the kinds of reforms introduced by the EU are not likely to have large price or trade impacts in either direction. The measures that increase production cost or slow the rate of technology adoption, such as increased environmental conditionality in the CAP, can be expected to slow the growth of exports and/or increase the growth of imports. In the case of the US, there are also relatively small market impacts implied by FAPRI analysis. It seems likely that trade growth will be more significantly influenced by world demand growth and new or expanded bilateral or multilateral trade agreements than by changes that occur in the CAP or US policy.

For the future, the continuation of relatively high and volatile prices gives the signal to government policy makers and farm lobby groups that

price support is less important than in the past, and measures to manage risk are likely to be more important. A more subtle change in emphasis in both the EU and US policy is moving away from decoupled income support payments that are based only on historical entitlements and toward measures that relate somehow to production practices, such as greening measures and discretionary coupled payments in the EU and risk management in the case of the US that depends to some degree on price or production.

The many factors that combine to influence the path of policy evolution over time and space are much more complex and interconnected than we have elaborated here. The important lesson is that different policies in different countries and in different time periods are the consequence of numerous economic, political, social, institutional and cultural factors that interact with each other. There are also factors external to every country that usually play a role, and these include trade, trade agreements and international institutions and, as we have emphasized here, the current market conditions and expected future market developments.

References

- Commission of the European Communities.(1988). *Disharmonies in EC and U.S. Agricultural Policy Measures*. Brussels: ECSE-EEC-EAEC.
- FAPRI-MU. (2014, August). *FAPRI Baseline Update for US Markets*. Columbia (MO, USA): FAPRI-MU Report #04-14.
- FAPRI-MU. (2013). *Impacts of Selected Provisions of the House and Senate Farm Bills*. Columbia (MO, USA): FAPRI-MU Report #06-13.
- Meyer, S., Binfield, J. and Westhoff, P. (2010). Interactions between Energy Markets and Agriculture in the U.S.: A Stochastic Approach. *Journal of International Agricultural Trade and Development*, 6(1), 21-39.
- Meyers, W.H., Helmar, M. and Hart, C. (1998). Modeling the Outcomes of CAP Reform. In Ingersent, K.A., Rayner, A.J. and Hine, R.C. (Eds.), *The Reform of the Common Agricultural Policy*. London: Macmillan Press.
- Meyers, W.H., Westhoff, P., Fabiosa, J.F. and Hayes, D.J. (2010). The FAPRI Global Modelling System and Outlook Process. *Journal of International Agricultural Trade and Development*, 6(1), 1-19.
- Meyers, W. H. and Ziolkowska, J.R. (2012). The CAP from a Global Perspective. In *Proposals for CAP 2013+ and Competitiveness of*

- Food Sector and Rural Areas*. Program Report 61(1), pp. 27-37. Warsaw: Institute of Agricultural and Food Economics, National Research Institute.
- Phipps, T.T., Rossmiller, G.E. and Meyers, W.H. (1990). Decoupling and Related Farm Policy Options. In: Allen, K. (Ed.), *Agricultural Policy in a New Decade* (pp.101-123). Washington: Resources for the Future.
- OECD-FAO. (2014). *Agricultural Outlook 2014-2023*. Retrieved from: <http://www.agri-outlook.org/>.
- USDA. (2015). *World Agricultural Supply and Demand Estimates*. Retrieved from: <http://www.usda.gov/oce/commodity/wasde/latest.pdf>.
- Westcott, P. and J. Hansen. (2015). *USDA Agricultural Projections to 2024*. Outlook No. (OCE-151). Retrieved from: <http://www.ers.usda.gov/publications/oce-usda-agricultural-projections/oce151.aspx>.
- Westhoff, P., Hayes, D.J., Meyers, W.H. and Helmar, M.D. (1992). An Analysis of the European Community Commission Plan for Common Agricultural Policy Reform. In: Becker, T., Gray, R. and Schmiz, A. (Eds.), *Improving Agricultural Trade Performance Under the GATT* (pp. 288-307). Kiel: WissenschaftsverlagVauk.
- World Bank. (2015). *Commodity Price Data (Pink Sheet)*. Washington, D.C.: World Bank Publications.

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Osmišljavanje robnog tržišta - Implikacije FAPRI-MU predviđanja i definisanja politika

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Sažetak

Nakon perioda niskih cijena iste su došle u dva navrata do vrhunca tj. u 2007/08. te 2010/11. na 2012/13. što nas je uvelo u eru viših i mnogo nesigurnijih cijena robe što se značajno razlikuje od ranijih godina depresivnih cijena. Pad cijena nafte u kombinaciji sa izvanredno rodnim godinama su doveli do najnižih tržišnih cijena za dugo godina. Da li su tekuće politike u skladu sa tržišnim uslovima? Počecemo sa evolucijom prošlih politika u Evropskoj Uniji (EU) i Americi (SAD) da bi se osvrnuli na skorašnje reforme i perspektivu promjene politika u kontekstu mogućih promjena na globalnom tržištu i političke klime u toku naredne decenije. Pošto se poljoprivredne politike generalno razvijaju kao odgovor na unutrašnje i vanjske pritiske u kontekstu političke ekonomije, mi istražujemo kako predviđanja na robnim tržištima mogu uticati na razvoj politika i uslova za donošenje odluka za poljoprivrednike.

Ključne riječi: Evropska Unija, Sjedinjene Američke Drzave, agrarna politika, CAP, predviđanja za robna tržišta

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